

IOWA DEPARTMENT OF NATURAL RESOURCES

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New Grain Vacuum Practices Help Control Fugitive Dust

New “best management practices” for vacuum operations at grain elevators will minimize dust and improve air quality. A working group of elevator operators and grain vac vendors helped develop the recommendations, which became effective as part of the Iowa Administrative Code on Sept. 10, 2014.

New Grain Vacuum Best Management Practices

- For grain loadouts, **use socks and drop-down spouts** or sleeves extending at least 6 inches below the sides of receiving containers to minimize grain free-fall distances, except when topping off grain.
- **Pay attention to wind direction and speed** to minimize offsite impact.
- **Vary the speed** of vacuum operations to minimize dust emissions.
- **Use directional discharge** to minimize offsite impact.
- **Consider additional control measures**, such as add-on controls.



The new practices join existing grain operation best management practices originally adopted in Iowa Administrative Code in 2007. Those practices include the following key areas:

General Maintenance, Upkeep and Repair

- **Maintain and operate** equipment and air pollution control equipment at all times to minimize emissions. Air pollution control equipment includes quick-closing doors, enclosures, air curtains, wind deflectors, grain-oiling equipment, loadout socks and drop-down spouts or sleeves, baghouses and vent filters, and cyclones.
- **Quickly fix malfunctioning** equipment and air pollution control equipment to minimize the amount and duration of excess emissions.
- **Operate air pollution control equipment** and check daily when grain is being handled.
- **Schedule routine maintenance** of equipment during periods of process shutdown when possible.
- **Clean internal and external facility areas**, including floors, roofs and decks to minimize dust when the facility is receiving, transferring, or loading out grain.
- **Clean yards, ditches and curbs** to minimize grain, chaff and dust accumulation.

Grain Handling Equipment

- **Clean, enclose or control grain handling equipment** to minimize visible dust emissions to 5 percent or less opacity. Grain handling equipment includes bucket elevators or legs, scale hoppers, turn heads, scalpors, cleaners, trippers, and headhouse and other such structures.
- **Minimize use of aeration fans** when loading grain into storage bins.

Grain Unloading Stations (Dump Pits) and Grain Loading Stations (Loadouts)

- **Maintain and operate dump pits with enclosures** to minimize dust emissions resulting from dumping and handling grain.
- **Draft fans must have airflow capacity** of at least 50 cfm/sq. ft. at the effective grate surface, which is the area of the dump pit grate through which air will pass when aspirated.
- **For grain loadouts, use socks and drop-down spouts** or sleeves extending at least 6 inches below the sides of receiving containers to minimize grain free-fall distances, except when topping off grain.
- **Regulate the flow of the grain through the spout** to minimize dust emissions from the receiving container, particularly when the container is empty or only partially full.
- **Oil grain** after it arrives at the grain unloading station and before it is transferred to bin storage for maximum control.

Grain Dryers

- **Perforations on new or replacement column dryer screens** should be no greater than 0.094 inches.
- **Enclose grain inlets and outlets** to dryers.
- **Screen houses on new or replacement filters for rack dryers** should have a maximum size of 50 mesh.
- **Control the volume of grain** passing through the dryer so it does not exceed the manufacturer's recommended capacity.
- **Inspect dryer screens** before start-up.

Facility-Specific Practices

- **Visible emissions at the facility** must be less than 40 percent opacity from equipment or air pollution control equipment.
- **If your grain elevator has an air quality permit**, check for the possibility of other requirements in addition to these best management practices.

Reporting Requirements

- **Record the best management practices** used whenever grain vacs are in operation. In addition, note the wind speed, wind direction, and the date and time of grain vac operation.
- **With the exception of grain vac operations**, there are no other specific recordkeeping requirements associated with best management practices for grain elevators that do not have an air quality permit. However, owners or operators are encouraged to maintain records to demonstrate best management practices are being implemented.

For more information, visit the Iowa DNR website at www.iowadnr.gov/newaircompliance and [567 Iowa Administrative Code \(IAC\) 22.10\(455B\)](#).

This document is intended solely as guidance, cannot be used to bind the Iowa Department of Natural Resources and is not a substitute for reading applicable statutes and regulations. Please refer to [567 IAC 22.10](#) and the Best Management Practices (BMPs) for Grain Elevators (located at www.iowadnr.gov/newaircompliance) to determine all applicable requirements.